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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/599,118	09/20/2006	Jun Masuda	351917-P0001	4453

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EXAMINER	
SAVAGE, JASON L	
ART UNIT	PAPER NUMBER
1794	
MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/599,118	MASUDA ET AL.	
	Examiner	Art Unit	
	JASON L. SAVAGE	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 September 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *20060920*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Information Disclosure Statement

It was noted that Applicant submitted documents drawn to an information disclosure statement in the papers filed 03-23-07 citing the International Preliminary Exam Report. However, no corresponding Form PTO-1449 was submitted sighting the reference. The cited document was received and considered and was listed on the attached PTO-892.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The limitation of the part having a surface to be in direct contact with a molten aluminum alloy, *such as* (emphasis added) a conduit, etc. is indefinite since it is unclear if the portion after 'such as' is a requirement of the claim or merely a preferred embodiment. The claim limitations have been interpreted as being drawn to any surface which can be in direct contact with a molten aluminum alloy .

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct

from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-13 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim1-10 of copending Application No. 11/565,771. Although the conflicting claims are not identical, they are not patentably distinct from each other because Application'771 recites a composite material for a die casting machine part comprising a steel pipe base, a Ni alloy layer formed on the steel base, and titanium carbide particles bonded to the surface of the Ni alloy layer (claim 1). Regarding the limitation in the claims that the casting metal is to be molten aluminum, it would have been obvious to have used the claimed composite material for die casting for a variety of materials including aluminum with a reasonable expectation of success.

Regarding claims 2-8, Application'771 recites the same claim limitations such as the TiC particles are not fully covered, gaps between the particles are filled with the claimed fine ceramic materials and the Ni alloy is the same composition as claimed (claims 2-4).

Regarding claim 9, Application'771 recites the composite material may be used as a sleeve part (claim 1).

Regarding claims 10-11, Application'771 recites the same limitations of forming the contact member including forming Ni alloy layer on steel base, burying the contact member body in TiC powder, vacuum heating to bond the powder and Ni layer, subsequently applying a slurry of ceramics (claims 8-9).

Regarding claim 12, Application'771 recites a TiC particle size between 10 to 500 microns. However, where the only difference between a claim and the prior art is one of relative dimensional differences and there is no showing that the claimed device and the prior art would perform any differently, the claimed device is not patentably distinct from the prior art. Gardner v. TEC System, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984).

Regarding claim 13, Application'771 does not claim the Ni alloy layer is formed by thermal spraying, however it would have been obvious to deposit the claimed layer by any conventional deposition process including thermal spraying with a reasonable expectation of success.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 5-6 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Darrow (US 4,996,114).

Regarding claims 1-2 and 5-6, Darrow teaches a composite metal material comprising a steel base substrate, a Ni alloy layer formed on the steel base, and titanium carbide particles bonded to the surface of the Ni alloy layer which partly protrude from the surface of the Ni alloy layer (col. 1, ln. 60-68). Regarding the limitation that the material is for machine parts for use in a casting machine for casting an article from a molten aluminum alloy, the recited claim limitations are drawn to an intended use which is not considered a patentably distinguishing limitation since Darrow teaches the same structure as what is claimed. See Ex parte Masham 2 U.S.P.Q.2d 1647, 1648. In re Thuau 135 F.2d 344, 47 U.S.P.Q. 324. Application of Hack, 245 F.2d.246, 114 U.S.P.Q. 161.

Regarding the limitation in the claims that the casting metal is to be molten aluminum, it would have been obvious to have used the claimed composite material for die casting for a variety of material including aluminum with a reasonable expectation of success.

Regarding claim 9, the surface of the composite of Darrow would be just as suitable to be placed in direct contact with a molten aluminum alloy since it is made of the same materials and has the same structure as claimed.

Claims 1, 5 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by JP'303 (JP 76020303).

Regarding claims 1 and 5, JP'303 teaches a composite metal material comprising a steel base substrate, a Ni-Mo alloy layer formed on the steel base, and titanium carbide particles bonded to the surface of the Ni alloy layer (abs). Regarding the limitation that the material is for machine parts for use in a casting machine for casting an article from a molten aluminum alloy, the recited claim limitations are drawn to an intended use which is not considered a patentably distinguishing limitation since JP'303 teaches the same structure as what is claimed.

Regarding claim 9, the surface of the composite of JP'303 would be just as suitable to be placed in direct contact with a molten aluminum alloy since it is made of the same materials and has the same structure as claimed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Darrow (US 4,996,114).

Darrow teaches what is set forth above but is silent to burying the nickel coated steel base in TiC powder. However, it would have been within the purview of one of

ordinary skill to have selected any suitable method of applying the TiC particles to the coated metal material surface with a reasonable expectation of success. Absent a teaching of the criticality or showing of unexpected results from the claimed method step, it would not provide a patentable distinction over the prior art.

Darrow is also silent to the step of heating the coated article in a heating oven to generate a liquid phase to thereby bond the TiC particles. However joining materials by heating in a protective atmosphere such as vacuums are known and thus would have been obvious.

Regarding claim 12, Darrow is silent to the average particle diameter. However, where the only difference between a claim and the prior art is one of relative dimensional differences and there is no showing that the claimed device and the prior art would perform any differently, the claimed device is not patentably distinct from the prior art.

Claims 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'303 (JP 76020303).

JP'303 teaches what is set forth above but is silent to burying the nickel coated steel base in TiC powder. However, it would have been within the purview of one of ordinary skill to have selected any suitable method of applying the TiC particles to the coated metal material surface with a reasonable expectation of success. Absent a teaching of the criticality or showing of unexpected results from the claimed method step, it would not provide a patentable distinction over the prior art.

JP'303 is also silent to the step of heating the coated article in a heating oven to generate a liquid phase to thereby bond the TiC particles. However joining materials by heating in a protective atmosphere such as vacuums are known and thus would have been obvious.

Regarding claim 12, JP'303 is silent to the average particle diameter. However, where the only difference between a claim and the prior art is one of relative dimensional differences and there is no showing that the claimed device and the prior art would perform any differently, the claimed device is not patentably distinct from the prior art.

Claims 1-3, 5-7 and 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakayama et al (JP 08-229657 English Machine Translation) in view of Negishi (JP 2001-300711 English Machine Translation)

Nakayama teaches a composite material for a die casting machine part comprising a steel base substrate, a Ni alloy layer plated on the steel base, and carbide particles bonded to the surface of the Ni alloy layer (par[0010]). Nakayama further teaches that the machine part for this the composite material is to be used in an aluminum die-casting wherein the material will contact hot molten aluminum metal (par[0001]).

Regarding the limitation that the carbide powders is titanium carbide, Negishi teaches a composite material for an aluminum die casting machine part comprising a steel base substrate, a Ni alloy layer formed on the steel base, titanium carbide particles

bonded to the surface of the Ni alloy layer (par[0001-0002]). As such, it would have been obvious to one of ordinary skill in the art to have modified the composite material part of Nakayama by following the teachings of Negishi such as by employing titanium carbide as the carbide particulate material with a reasonable expectation of success.

Regarding claims 2 and 6, although the prior art does not explicitly recite the TiC particles are partly exposed on the surface of the Ni layer, it would have been obvious ton one of ordinary skill in the art at the time of the invention to have partially exposed the titanium particles in hopes that the wetting of molten metal would be reduced and thus provide the composite with superior erosion resistance.

Regarding claims 3, 7 and 11, Nakayama teaches that ceramic particles such as oxides of alumina and zirconia may be added in combination with the TiC particles which results in outstanding abrasion resistance (par[0026-0027]). As such, it would have been obvious to have added ceramic powders such as those claimed in order to provide the material composite with outstanding abrasion resistance. Regarding the limitation that the ceramic fills gaps in the TiC particles, it is the position of the Examiner that the ceramics of Nakayama would fill in some gaps of the TiC particles and thus would meet the claim limitations.

Regarding claim 9, the article of Nakayama as modified by Negishi would meet the claim limitation as being drawn to a die casting machine for aluminum alloys and thus would have a surface which would be in direct contact with molten aluminum

Regarding claim 10, the references are silent to the limitation that the nickel coated steel base is buried in TiC powder. However, it would have been within the

purview of one of ordinary skill to have selected any suitable method of applying the TiC particles to the coated metal material surface with a reasonable expectation of success. Absent a teaching of the criticality or showing of unexpected results from the claimed method step, it would not provide a patentable distinction over the prior art.

The prior art is also silent to the step of heating the coated article in a heating oven to generate a liquid phase to thereby bond the TiC particles. However joining materials by heating in a protective atmosphere such as vacuums are known and thus would have been obvious.

Regarding claim 12, the prior art is silent to the average particle diameter. However, where the only difference between a claim and the prior art is one of relative dimensional differences and there is no showing that the claimed device and the prior art would perform any differently, the claimed device is not patentably distinct from the prior art.

Claims 4, 8 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakayama et al (JP 08-229657 English Machine Translation) in view of Negishi (JP 2001-300711 English Machine Translation) as applied to claimed 1-3, 5-7 and 9-12, further in view of Honma et al (JP 2001-342530).

The prior art teaches what is set forth above; however it does not exemplify the claimed nickel alloy. Honma teaches a nickel alloy having B, Mo, Si and C which overlap the ranges claimed. As such, it would have been obvious one of ordinary skill in the art at the time of the invention to have modified the invention of Nakayama and

Negishi by utilizing the NiBMoC alloy of Honma with a reasonable expectation of success.

Regarding the limitation in claim 13 that the claimed nickel alloy is deposited by thermal spraying. However, it would have been obvious to deposit the claimed layer by any conventional deposition process including thermal spraying with a reasonable expectation of success.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON L. SAVAGE whose telephone number is (571)272-1542. The examiner can normally be reached on M-F 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks can be reached on 571-272-1401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jason Savage/
6-23-08

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